

**Abstract**

A data processing system processes data arrays that collectively describe cyclic behavior of at least one variable in several entities in a physical process. Each cycle comprises several time slots. An input routine (2-4) receives multiple data arrays, each data array containing multiple data items, each of which describes a variable of an entity in one time slot. A magnitude-determination routine (2-6) determines a specific magnitude parameter, such as average, volume or peak, for each of the several entities. A scaling routine (2-8) scales the data arrays between entities such that the specific magnitude parameters are suppressed and only their shape is maintained. A training routine (2-10) trains a clustering system with a first plurality of the scaled data arrays, to determine a set of cluster centers. After training, a clustering routine (2-12) applies a second plurality of the scaled data arrays to the trained clustering system.

(Fig. 2)